

We claim:

Sub A7

1. A range measuring device comprising a waveform
5 adaptive ultra-wideband transmitter, said range measuring
device comprising:

a signal generator to generate a waveform adaptive
ultra-wideband signal;

10 an antenna responsive to said signal generator to
radiate a signal representing said ultra-wideband signal; and
a receiver for receiving said radiated ultra-
wideband signal.

2. A communication system utilizing an ultra-
15 wideband transmitter, said ultra-wideband transmitter
comprising:

a signal generator to generate a waveform adaptive
ultra-wideband signal;

20 an antenna responsive to said signal generator to
radiate a representation of said ultra-wideband signal; and
a receiver for receiving said radiated ultra-
wideband signal.

3. A method for detecting an object utilizing
25 ultra-wideband transmitting techniques, said method
comprising:

a signal generator to generate a waveform adaptive
ultra-wideband signal;

30 an antenna responsive to said signal generator to
radiate a signal representing said ultra-wideband signal; and
a receiver for receiving said radiated ultra-
wideband signal.

4. A waveform adaptive ultra-wideband transmitter comprising:

5 a signal generator to generate a series of discrete low-level ultra-wideband signals having a selectable carrier frequency;

10 a waveform adapter responsive to said low-level ultra-wideband signals and including at least one of a bandpass filter, a mixer, a pulse shaper, and an attenuator that controls one of frequency, pulse shape, bandwidth, phase, multi-level amplitude, and multi-level attenuation of said low-level ultra-wideband signals; and

15 an antenna responsive to said waveform adapter to radiate ultra-wideband signals.

15 5. The ultra-wideband transmitter according to claim 4,
wherein:

20 said waveform adapter controls said low-level ultra-wideband signal on a dynamic, real-time basis.

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